**Mechanical regulation of actin networks and the plasma membrane**Organized networks of actin filaments drive membrane protrusions,
guide intracellular organization, and contribute to the mechanical
rigidity of eukaryotic cells.  In each of these roles, actin networks
and membranes are exposed to external forces.  While the biochemical
basis for assembly and disassembly of diverse actin networks has
received significant attention, the role of physical constraints is
less well understood.  This talk will present optical and force
microscopy studies that show mechanical forces play a crucial role in
organizing actin structures and membrane shape change.  These results
draw attention to the importance of physical boundary conditions in
understanding the molecular mechanisms that govern cellular
organization.